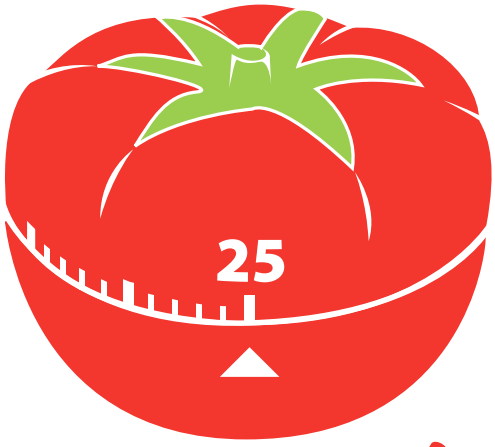

the Pomodoro TECHNIQUE

by Francesco Cirillo

The Pomodoro Technique (The Pomodoro)

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Preface

The basic idea for the Pomodoro Technique came to me in the late '80s, during my first years at university.

Once the elation from completing my first-year exams had subsided, I found myself in a slump, a time of low productivity and high confusion. Every day I went to school, attended classes, studied and went back home with the disheartened feeling that I didn't really know what I'd been doing, that I'd been wasting my time. The exam dates came up so fast, and it seemed like I had no way to defend myself against time.

One day in the classroom on campus where I used to study, I watched my classmates with a critical eye, and then looked even more critically at myself: how I got myself organized, how I interacted with others, how I studied. It was clear to me that the high number of distractions and interruptions and the low level of concentration and motivation were at the root of the confusion I was feeling.

So I made a bet with myself, as helpful as it was humiliating: "Can you study – really study - for 10 minutes?" I needed objective validation, a Time Tutor, and I found one in a kitchen timer shaped like a pomodoro (the Italian for tomato) – in other words, I found my "Pomodoro".

I didn't win the bet straight off. In fact, it took time and a great deal of effort, but in the end I succeeded.

In that first small step, I found something intriguing in the Pomodoro mechanism. With this new tool, I devoted myself to improving my study process and later my work process. I tried to understand and solve more and more complex problems, to the point of considering the dynamics of team work. Gradually I put together the Pomodoro Technique, which I describe in this document.

After years of teaching the Pomodoro Technique in classes open to the public and in team mentoring, general interest has grown. More and more people are asking what it is and how to apply it, so there's a need for me to explain the Technique as I conceived it. My hope is that it can help others reach their goals for personal improvement, and that I can further develop my original idea.

Acknowledgements

First and foremost, I want to thank my friend and mentor, Giovanni Caputo, for having accompanied me yet again in this adventure.

Thanks also go to everyone who applied the Pomodoro Technique, either individually or as a group, helping disseminate the concept and encouraging me to write this paper: Piergiuliano Bossi, Claudia Sandu, Meihua Su, Federico De Felici, Alessandra del Vecchio and Jill Connelly, to name a few.

Thanks to all those who learned the Pomodoro Technique through my workshops; their feedback enabled me to observe it and improve it. In particular: Andrea Narduzzi, Bruno Bossola, Giannandrea Castaldi, Roberto Crivelli, Ernesto Di Blasio, Alberto Quario, Loris Ugolini, Silvano Trea, Alberico Gualfetti, Marco Dani, Luigi Mengoni, Leonardo Marinangeli, Nicola Canalini.

Lastly, thanks to the second generation of Pomodoro users, those who learned it indirectly through my notes or by working in teams where the Technique has been consolidated. I've written this paper especially for them: Matteo Vaccari (and the people at ESSAP), Simone Genini, Carlo Bottiglieri, Gabriele Lana (and the people at Milano XPUG), Alejandro Barrionuevo, and Stefano Castelvetri (among others).

Introduction

For many people, time is an enemy. The anxiety triggered by "the ticking clock", in particular when a deadline is involved, leads to ineffective work and study behaviour which in turn elicits the tendency to procrastinate. The Pomodoro Technique was created with the aim of using time as a valuable ally to accomplish what we want to do the way we want to do it, and to empower us to continually improve our work or study processes. This paper presents the Pomodoro Technique as defined in 1992 by the author, and as taught to individuals since 1998 and to teams since 1999.

The Context section delineates the problem linked to time, the goals of the Pomodoro Technique and its basic assumptions. Material and Method describes the Pomodoro Technique, and shows how to apply it by reaching incremental objectives. The Results section provides a series of observations based on the experience of people who have tried the Technique. The Conclusions section identifies a number of factors that explain how the Technique achieves its goals. This document presents a general version of the Pomodoro Technique. The text entitled *Applying the Pomodoro Technique in Teams* details how the Technique can be used in work groups.

1 The Context

Who hasn't experienced time anxiety when faced with a task that has to be finished by a certain deadline? In these circumstances, who hasn't felt the need to put off that task, to "come up for air"? Who hasn't had that unpleasant sensation of depending on time, chasing after appointments, giving up what one loves to do for lack of time?

"Remember, Time is a greedy player who wins without cheating, every round!" writes Baudelaire in his poem "The Clock" (1). Is this the true nature of time? Or is it only one of the possible ways to consider time? And more generally speaking, why do people have such a problem in the way they relate to time? Where does it come from, this anxiety that we've all experienced at the thought that "time is slipping away"?

Thinkers, philosophers, scientists – anyone who's taken on the challenge of attempting to define time in and of itself and the relationship between people and time has always been forced to admit defeat. Such an inquiry, in fact, is inevitably limited and never complete. Few have given us any truly insightful perspectives. For example, according to the work of Bergson (3) and Minkowski (16), two profoundly interrelated aspects seem to coexist with reference to time:

- *Becoming*. An abstract, dimensional aspect of time, which gives rise to the habit of measuring time (seconds, minutes, hours); the idea of representing time on an axis, as we would spatial dimensions; the concept of the duration of an event (the distance between two points on the temporal axis); the idea of being late (once again the distance between two points on the temporal axis).
- The succession of events. A concrete aspect of temporal order: we wake up, we take a shower, we have breakfast, we study, we have lunch, we have a nap, we play, we eat, and we go to bed. Children come to have this notion of time before they develop the idea of abstract time which passes regardless of the events that take place (16).

Of these two aspects, it is *becoming* that generates anxiety – it is, by nature, elusive, indefinite, infinite: time passes, slips away, moves toward the future (16). If we try to measure ourselves against the passage of time, we feel inadequate, oppressed, enslaved, defeated, more and more with every second that goes by. We lose our *élan vital* (3), our vital contact, which enables us to accomplish things. "Two hours have gone by and I'm still not done; two days have gone by and I'm still not done." In a moment of weakness, the purpose of the activity at hand is often no longer even clear. The succession of events, instead, seems to be the less anxiety-ridden aspect of time. At times it may even represent the regular succession of activity, a calm-inducing rhythm.

1.1 Goals of the Pomodoro Technique

The aim of the Pomodoro Technique is to provide a simple tool/process for improving productivity (your own and that of your team) which is able to do the following:

- Alleviate anxiety linked to *becoming*
- Enhance focus and concentration by cutting down on interruptions
- Increase awareness of your decisions
- Boost motivation and keep it constant
- Bolster the determination to achieve your goals
- Refine the estimation process, both in qualitative and quantitative terms
- Improve your work or study process
- Strengthen your determination to keep on applying yourself in the face of complex situations

1.2 Basic Assumptions

The Pomodoro Technique is founded on three basic assumptions:

- A different way of seeing time (no longer focused on the concept of *becoming)* alleviates anxiety and in doing so leads to enhanced personal effectiveness.
- Better use of the mind enables us to achieve greater clarity of thought, higher consciousness, and sharper focus, all the while facilitating learning.
- Employing easy-to-use, unobtrusive tools reduces the complexity of applying the Technique while favoring continuity, and allows you to concentrate your efforts on the activities you want to accomplish. Many time management techniques fail because they subject the people who use them to a higher level of added complexity with respect to the intrinsic complexity of the task at hand.

The primary inspiration for Pomodoro Technique was drawn from the following ideas: time-boxing (14), the cognitive techniques described by Buzan, among others, (6, 7, 8) relating to how the mind works, and the dynamics of play outlined by Gadamer (10). Notions relating to structuring objectives and activities incrementally are detailed in Gilb (11).

2 Material and Method

The process underlying the Pomodoro Technique consists of five stages:

What	When	Why
Planning	at the start of the day	to decide on the day's activities
Tracking	throughout the day	to gather raw data on the effort expended and other metrics of interest
Recording	at the end of the day	to compile an archive of daily observations
Processing	at the end of the day	to transform raw data into information
Visualizing	at the end of the day	to present the information in a format that facilitates understanding and clarifies paths to improvement

Table 2.1 The Stages of the Pomodoro Technique

Note The basic iteration of the Pomodoro Technique lasts one day, but it could also be less. In this case, the five stages would take place more frequently.

Figure 2.1 The Pomodoro

To implement the Pomodoro Technique, all you need is the following:

- A Pomodoro: a kitchen timer (fig. 2.1)
- A To Do Today Sheet (Appendix 2), filled in at the start of each day with the following:
  - A heading with place, date, and author
  - A list of the things to do during the day, in order of priority
  - A section labelled Unplanned & Urgent Activities where any unexpected tasks that have to be dealt with should be listed as they come up. These activities could potentially modify the day's plan.
- An Activity Inventory Sheet (Appendix 3), consisting of:
  - A heading with the name of the author
  - A number of lines where various activities are noted down as they come up. At the end of the day, the ones that have been completed are checked off.
- A Records Sheet: This is the set of raw data needed to produce pertinent reports and graphics. Depending on the objectives in question, this contains different sets of boxes. Normally, this sheet would include the date, description, and the number of Pomodoros worth of effort needed to accomplish a task. This sheet is updated at least once a day, usually at the end of the day.

In the simple examples shown in this paper, the Recording, Processing and Visualizing stages are done directly on the Records Sheet.

Note Due to typographical constraints, the sheets used in this paper only show the entries relating to the topic in question. Simple models of the sheets described here are provided in the Appendices, and can be used to practice the Technique.

An evolutionary approach to the use of the Pomodoro Technique is provided below, oriented toward a progressive experimentation of the Technique itself. Clearly, the incremental nature of the Technique means the objectives should be achieved in the order they are given here.

2.1 Objective I: Find Out How Much Effort an Activity Requires

The traditional Pomodoro is 30 minutes long: 25 minutes of work plus a 5-minute break. At the beginning of each day, choose the tasks you want to tackle from the Activity Inventory Sheet, prioritize them, and write them down in the To Do Today Sheet (Fig. 2.2).

	TO DO TODAY	Rome, 12 July 2006 Mark Ross
	Write article on *How to Learn Music* (max 10 pps)	
	Finetune *How to Learn Music* by reading it out loud	
	Condense *How to Learn Music* to 3 pps	

Figure 2.2 To Do Today Sheet

2.1.1 Start the First Pomodoro

Set the Pomodoro for 25 minutes and start the first activity on the To Do Today Sheet. Whoever is using the Pomodoro, whether one person or more than one, should always be able to clearly see how much time is left (fig. 2.3).

Figure 2.3 The Pomodoro: The time remaining should always be visible.

A Pomodoro can't be interrupted; it marks 25 minutes of pure work. A Pomodoro can't be split up; there is no such thing as half of a Pomodoro or a quarter of a Pomodoro. The atomic unit of time is a Pomodoro. (Rule: A Pomodoro Is Indivisible.) If a Pomodoro is definitively interrupted by someone or something, that Pomodoro should be considered void, as if it had never been set; then you should make a fresh start with a new Pomodoro. When the Pomodoro rings, mark an X next to the activity you've been working on and take a break for 3-5 minutes.

	TO DO TODAY	Rome, 12 July 2006 Mark Ross
	Write the article on *How to Learn Music* (max 10 pps)	X
	Finetune *How to Learn Music* by reading it out loud	
	Condense *How to Learn Music* down to 3 pps	

Figure 2.4 To Do Today Sheet: the first Pomodoro.

When the Pomodoro rings, this signals that the current activity is peremptorily (though temporarily) finished. You're not allowed to keep on working "just for a few more minutes", even if you're convinced that in those few minutes you could complete the task at hand.

The 3-5 minute break gives you the time you need to "disconnect" from your work. This allows the mind to assimilate what's been learned in the last 25 minutes, and also provides

you with the chance to do something good for your health, which will help you to do your best during the next Pomodoro. During this break you can stand up and walk around the room, have a drink of water, or fantasize about where you'll go on your next vacation. You can do some deep breathing or stretching exercises. If you work with other people, you can swap a joke or two, and so on.

During this quick break, it's not a good idea to engage in activities that call for any significant mental effort. For example, don't start talking about work-related issues with a colleague; don't write important emails or make imperative phone calls, etc. Doing these kinds of things would block the constructive mental integration that you need in order to feel alert and ready for the start of the next Pomodoro. You should include these activities in your Activity Inventory, and earmark specific Pomodoros to do them. Clearly, during this break you shouldn't continue thinking about what you've done during the last Pomodoros. Once the break is over, set the Pomodoro to 25 minutes and continue the activity at hand until the next time it rings. Then mark another X on the To Do Today Sheet (fig. 2.5).

	TO DO TODAY	Rome, 12 July 2006 Mark Ross
	Write the article on *How to Learn Music* (max 10 pps)	X X
	Finetune *How to Learn Music* by reading it out loud	
	Condense *How to Learn Music* down to 3 pps	

Figure 2.5 To Do Today Sheet: The second Pomodoro.

Next comes the 3-5 minute break, and then a new Pomodoro.

2.1.2 Every Four Pomodoros

Every four Pomodoros, stop the activity you're working on and take a longer break, from 15 to 30 minutes.

	TO DO TODAY	Rome, 12 July 2006 Mark Ross
	Write the article on *How to Learn Music* (max 10 pps)	X X X X
	Finetune *How to Learn Music* by reading it out loud	
	Condense *How to Learn Music* down to 3 pps	

Figure 2.6 To Do Today Sheet: The end of the first set of Pomodoros.

The 15-30 minute break is the ideal opportunity to tidy up your desk, take a trip to the coffee machine, listen to voice mail, check incoming emails, or simply rest and do breathing exercises or take a quick walk. The important thing is not to do anything complex, otherwise your mind won't be able to reorganize and integrate what you've learned, and as a result you won't be able to give the next Pomodoro your best effort. Obviously, during this break too you need to stop thinking about what you did during the last Pomodoros.

2.1.3 Completing an Activity

Keep on working, Pomodoro after Pomodoro, until the task at hand is finished, and then cross it out on the To Do Today Sheet (fig. 2.7).

	TO DO TODAY	Rome, 12 July 2006 Mark Ross
	~~Write article on *How to Learn Music* (max 10 pps)~~	X X X X X
	Finetune *How to Learn Music* by reading it out loud	
	Condense *How to Learn Music* down to 3 pps	

Figure 2.7 To Do Today Sheet: Completing an activity.

Specific cases should be handled with common sense:

- If you finish a task while the Pomodoro is still ticking, the following rule applies: If a Pomodoro Begins, It Has to Ring. It's a good idea to take advantage of the opportunity for *overlearning* (17), using the remaining portion of the Pomodoro to review or repeat what

you've done, make small improvements, and note down what you've learned until the Pomodoro rings.

- If you finish an activity in the first five minutes of the Pomodoro and you feel like the task was actually already finished during the previous Pomodoro and revision wouldn't be worthwhile, as an exception to the rule the current Pomodoro doesn't have to be included in the Pomodoro count.

Once the current activity has been successfully completed, move on to the next one on your list, then the next, taking breaks between every Pomodoro and every four Pomodoros (fig. 2.8)

	TO DO TODAY	Rome, 12 July 2006 Mark Ross
	~~Write article on How to Learn Music (max 10 pps)~~	XXXXX
	~~Finetune How to Learn Music by reading it out loud~~	XX
	~~Condense How to Learn Music down to 3 pps~~	XXX

Figure 2.8 To Do Today: Completing several activities.

2.1.4 Recording

At the end of every day, the completed Pomodoros can be transferred in a hard-copy archive. As an alternative, it may be more convenient to use an electronic spreadsheet or a database, and delete the completed activities from the Activity Inventory Sheet.

What you track and record depends on what you want to observe and the kind of reports that you want to generate. The initial aim of tracking and later recording could simply be to present a report with the number of Pomodoros completed per task. In other words, you may want to show the effort expended to accomplish each activity. To do so, the following boxes can be used: the date, start time, type of activity, description of the activity, the actual number of Pomodoros, a short note on the results achieved, and possible room for improvement, or problems that may have come up (fig. 2.9). This initial recording model actually represents the report you want. It's easy to draw up, even on paper.

RECORDS					Marco Rossi
Date	Time	Type	Activity	Actual Pomodoros	Notes
12 July 2006	08:30	Writing	*How to Learn Music*	5	7 pps
12 July 2006	11:30	Finetuning	*How to Learn Music*	2	
12 July 2006	14:00	Condensing	*How to Learn Music*	3	from 7 to 3 pps

Figure 2.9 Records Sheet

How did Marco fill in the time he began an activity if he didn't track it? With the Pomodoro Technique, it's not essential to track the start time for an activity (or for every Pomodoro). What's important is to track the number of Pomodoros actually completed: the real effort. This point is the key to fully understanding the Pomodoro Technique. Since tracking is done at least once a day, remembering and reconstructing the start times for activities isn't difficult; in fact, this kind of recall is a beneficial mental exercise.

Note A useful technique for remembering start times is to do a rundown of the day beginning with the most recent activity and moving backwards to the first one.

2.1.5 Improvement

Recording provides an effective tool for people who apply the Pomodoro Technique in terms of self-observation and decision-making aimed at process improvement. For example, you can ask yourself how many Pomodoros a week you spend on work activities and on explorative activities, or how many Pomodoros you do on an average day of the week, etc. You can also

ascertain if the stages in the process are all effective, or if one could be eliminated while still achieving the same results.

For instance, we can see in Figure 2.9 that it took Mark ten Pomodoros to write, finetune, and condense the article How to Learn Music. That seems like too many. Mark would really like to get the same result with nine Pomodoros or less. Then he would have one or more Pomodoros for free time for other activities. "I'd like to try to write the next article with the same quality and less effort. How? What should I cut out? What activities are really useful? How can I reorganize them to be more effective?" This is the type of question that enables people to improve, or at least to try to improve, their work or study processes. At the end of the day, the activity of recording and later looking for ways to improve should not take more than one Pomodoro.

2.1.6 The Nature of the Pomodoro

The Pomodoro marks the passage of time, and so it is itself a measure of the dimension of time. It becomes a measure of the dimension of effort when it is combined with the number of people involved in an activity. Depending on this number, we can say that a given task was accomplished with a certain number of Person Pomodoros or Pair Pomodoros or Team Pomodoros, where these units measure effort. The quantities of effort relative to different numbers of people are not homogeneous; they can't be added together or compared with one another. The work of an individual, a pair or a group represents a different way of combining production factors and also diverse means of communication. There are no formulas for converting Person Pomodoros to Pair Pomodoros or Team Pomodoros.

Note Let's say we want to measure the cost of an activity performed by more than one person, either individually, in pairs, or in teams. By applying a monetary measurement it's clear we can compare and add up the different amounts of effort. For example, let's take an activity that's achieved by the effort of 2 Person Pomodoros and 3 Pair Pomodoros. In terms of effort, these amounts can not be directly compared or summed in any way. However, by assigning a monetary value for the effort of one Pomodoro, for example €10.00, we can actually say that the activity costs 2 x € 10.00+ 3 x 2 x € 10.00 = € 80.00.

Nota The paper *Applying the Pomodoro Technique in Teams* explains how to track and record pair or group work.

2.2 Objective II: Cut Down on Interruptions

The length of a Pomodoro, 25 minutes, seems short enough to make it possible to resist being distracted by various kinds of interruptions. But experience shows that once you've started using the Pomodoro Technique, interruptions can become a real problem. That's why an effective strategy is needed for minimizing unhandled interruptions and progressively increasing the number of Pomodoros that can be accomplished consistently without interruptions. There are two kinds of interruptions: internal and external.

2.2.1 Internal Interruptions – We Interrupt Ourselves

Even though a Pomodoro only lasts 25 minutes, it won't be easy for everyone to finish the first few Pomodoros without giving in to some immediate need to interrupt the activity at hand: the need to stand up and get something to eat or drink, or to make a call that suddenly seems terribly urgent, or to look up something on the Internet this minute (it may be related or unrelated to the task at hand) or to check email this instant. Lastly, we might even need to rethink how we've prioritized this particular activity; we're constantly second-guessing our daily planning or our decisions.

These kinds of distractions, or ways to procrastinate on the activity at hand, are called internal interruptions. They generally disguise our fear of not being able to finish what we're working on the way we want and when we want. Internal interruptions are often associated with having little ability to concentrate.

How can we free ourselves from these internal interruptions?

We have to work on two fronts simultaneously:

- Make these interruptions clearly visible. Every time you feel a potential interruption coming on, put an apostrophe (‘) on the sheet where you record your Pomodoros. Then do one of the following:
  - Write down the new activity on the To Do Today Sheet under Unplanned & Urgent if you think it’s imminent and can’t be put off.
  - Write it down in the Activity Inventory, marking it with a “U” (unplanned); add a deadline if need be.
- Intensify your determination to finish the current Pomodoro. Once you’ve marked down the apostrophe, continue working on the given task till the Pomodoro rings. (Rule: Once a Pomodoro Begins, It Has to Ring.)

The aim is to accept the fact that needs do emerge, and they shouldn’t be neglected. Look at them objectively and if possible reschedule them for another time.

2.2.2 Scenario

An example will help clarify the dynamic of handling internal interruptions. During the second Pomodoro for writing the article on How to Learn Music, Mark suddenly feels he has to call his friend Carol to find out when his favorite rock group is having its next concert. Mark asks himself: “Is this really urgent? Do I have to do it today? No, I can put it off. Maybe an hour or two. Maybe even until tomorrow!” Mark puts an apostrophe on the To Do Today Sheet next to the current activity (fig. 2.10), adds an item to the Activity Inventory for unplanned activities (marked with a “U” – fig. 2.11) and continues with the Pomodoro.

	TO DO TODAY	Rome, 12 July 2006 Mark Ross
	Write article on *How to Learn Music* (max 10 pps)	’ X
	Finetune *How to Learn Music* by reading it out loud	
	Condense *How to Learn Music* to 3 pps	

Figure 2.10 To Do Today Sheet: An internal interruption.

	ACTIVITY INVENTORY	Mark Ross
	…	
N	Call Carol: When’s the next rock concert?	
	…	

Figure 2.11 Activity Inventory Sheet: An unplanned activity.

Then Mark asks himself: “Does this activity have to be done by tomorrow? No, it just has to be done by the end of the week.” Mark adds this deadline in brackets next to the “U” (fig. 2.12).

	ACTIVITY INVENTORY	Mark Ross
	…	
N [14July]	Call Carol: When’s the next rock concert?	
	…	

Figure 2.12 Activity Inventory Sheet: An unplanned activity with a deadline.

If Mark gets a sudden craving for a pizza 10 minutes later, he’ll mark down another apostrophe but this time he’ll note this activity on the To Do Today Sheet under Unplanned & Urgent (fig. 2.13). Then Mark continues with his Pomodoro.

	TO DO TODAY	Rome, 12 July 2006 Mark Ross
	Write article on *How to Learn Music* (max 10 pps)	' ' X
	Finetune How to Learn Music by reading it out loud	
	Condense How to Learn Music to 3 pps	
	UNPLANNED & URGENT	
	Order a pizza	

Figure 2.13 To Do Today Sheet: An urgent internal interruption.

Up to this point, the Pomodoro hasn't been interrupted. It's kept on ticking and Mark has continued working, dealing with interruptions. Clearly, as little time as possible should be spent dealing with interruptions, a few seconds at most. Otherwise the Pomodoro has to be considered interrupted, or void. Finally the Pomodoro rings. Mark records it with an "X" and takes a quick break (fig. 2.14)

	TO DO TODAY	Rome, 12 July 2006 Mark Ross
	Write article on *How to Learn Music* (max 10 pps)	' ' X X
	Finetune How to Learn Music by reading it out loud	
	Condense How to Learn Music to 3 pps	
	UNPLANNED & URGENT	
	Order a pizza	

Figure 2.14 To Do Today Sheet: Urgent internal interruption, second Pomodoro.

When does Mark order the pizza? Depending on the level of urgency he perceives, Mark can opt to call his favorite pizza place right away and order the pizza, or wait until the end of a four-Pomodoro session. In any case, the urgency is clearly visible. Mark decides to move on to the next Pomodoro. Eight potential interruptions await Mark during the third Pomodoro, but fortunately he deals with them all: he classifies one activity as not urgent and records it in the Activity Inventory; Mark has no other choice but to categorize the other interruptions as urgent (fig.2.15).

	TO DO TODAY	Rome, 12 July 2006 Mark Ross
	Write article on *How to Learn Music* (max 10 pps)	' ' ' ' ' ' ' ' ' ' X X
	Finetune How to Learn Music by reading it out loud	
	Condense How to Learn Music to 3 pps	
	UNPLANNED & URGENT	
	Order a pizza	
	Choose a bike to buy	
	Read article on learning music in Asia	
	Look for July jazz happenings in Rome on Internet	
	Check email	
	Order Chinese takeout	
	Tidy up desk drawers	
	Sharpen pencils	

Figure 2.15 To Do Today Sheet: Several urgent internal interruptions.

The urgency of the activities listed above might make some people smile. But that's how Mark perceives them. The point to emphasize here is that with the Pomodoro Technique, lots of useful or fun things to do come up, but we make a conscious decision not to do them right away during the current Pomodoro. Reading through the various activities and the urgency we assign to each, we can see how much our mind is moving, and how hard it is to keep it still and focus on the activity at hand. Often the number and variety of attempted internal interruptions are symptoms of our fear of failure in completing the task at hand.

It should come as no surprise that many of these distractions later prove to be anything but urgent, even to the person who wrote them down. Most likely at the end of the Pomodoro or the activity or the day, several items marked urgent or absolute priority will be handled in different ways.

- They'll be moved to the Activity Inventory. Maybe we can pick out a bike tomorrow.
- They'll be done during longer breaks. That's the time to look up jazz concerts in Rome in July, for example.
- They'll be deleted. Does Mark really want to order a pizza along with spring rolls and Peking duck? He might even realize he doesn't want to order anything and he'll eat at the end of the day.

It's a different mind that reads over those items at the end of a Pomodoro, or a set of four, or at the end of the day, and it's sometimes surprising. Truly urgent tasks are always highlighted on the To Do Today Sheet. The aim of the Pomodoro Technique is to ensure that the current Pomodoro isn't interrupted by these activities. Instead, the following options are available:

- They can be done during the next Pomodoro (but still measured by a Pomodoro), in place of other activities.
- They can be re-scheduled sometime during the day, in place of other activities.
- They can be moved from Pomodoro to Pomodoro if possible till the end of the day. This helps us gradually learn to recognize what's really urgent.

If and when unplanned urgent activities are done during the day, the relative Pomodoros are marked down in the proper space (fig. 2.16). In all the cases discussed so far, the interruptions can be considered handled. Note that the mechanism for handling interruptions consists of inverting the dependency on internal interruptions, and consequently making these interruptions depend on the Pomodoros we decide to slot them into.

	TO DO TODAY	Rome, 12 July 2006 Mark Ross
	Write article on *How to Learn Music* (max 10 pps)	' ' ' ' ' ' ' ' ' ' ' ' X X
	Finetune *How to Learn Music* by reading it out loud	
	Condense How to Learn Music to 3 pps	
	UNPLANNED & URGENT	
	Order a pizza	
	Choose a bike to buy	
	~~Read article on learning music in Asia~~	X
	Look for jazz happenings in July in Rome on Internet	
	Check email	
	Order Chinese takeout	
	Tidy up desk drawers	
	Sharpen pencils	

Figure 2.16 To Do Today Sheet: Unplanned activity done during the day.

If you have to interrupt a Pomodoro, either because you give in to temptation or something really urgent comes up, there's only one thing to do: void the current Pomodoro, even if it's about to ring. (Rule: A Pomodoro Is Indivisible.) Then mark down an apostrophe where Pomodoros are recorded to keep track of the interrupted Pomodoro. Obviously, you can't mark the unfinished Pomodoro - which didn't actually ring - with an X. So, take a 5-minute break and start with a new Pomodoro.

The Next Pomodoro Will Go Better.

The first objective to achieve in cutting down on interruptions is to be aware of the number and type of internal interruptions. Observe them, accept them, and schedule them or delete them, as the case may be.

2.2.3 External Interruptions – We're Interrupted by Others

People who work in social environments can be interrupted: your study partner asks you to explain a paragraph or suggests going to a movie after dinner; a phone call doesn't get effectively filtered by the secretary; a colleague asks you how to compile a report; an email program constantly beeps every time a new message comes in. What should you do?

External interruptions call for the ability to "protect" the ticking Pomodoro. Up till now a major effort has been made to eliminate internal interruptions. Now the risk is that someone on the outside prevents you from having the pleasure of marking an X on your To Do Today Sheet.

The main difference between internal and external interruptions is that with the latter we need to interact with other people: we need to communicate. The mechanism for dealing with external interruptions is the same as that for internal ones: invert the dependency on interruptions, and make the interruptions depend on us.

A few examples are helpful to clarify what we actually need to do. Incoming phone calls can always be taken by the answering machine and messages listened to later. Emails can keep coming in without distracting our attention simply by deactivating acoustic signals for incoming messages. If a colleague or study partner comes over, you can politely say you're busy and can't be interrupted. (Some people use the humorous expression "I'm in the middle of a Pomodoro.") Then tell the person that you'd rather call them back in 25 minutes, or in a few hours, or tomorrow, depending on how urgent and important the matter is.

Speaking from experience, true emergencies that need to be dealt with instantly are rare in real life. A 25-minute or 2-hour delay (four Pomodoros) is almost always possible for activities that are commonly considered urgent. This delay isn't usually detrimental to the person who wants to communicate with you, but gives you an enormous advantage in terms of making your mind work effectively, finishing activities the way you want to and rescheduling urgent tasks. With practice, you'll come to realize how often apparently urgent activities can even be postponed till the following day while still satisfying the person making the request.

So, Protect the Pomodoro means: inform effectively, negotiate quickly to reschedule the interruption, and call back the person who interrupted you as agreed. The Inform, Negotiate, Call Back Strategy enables you to control external interruptions by simply rescheduling them in a later Pomodoro the same day or another day according to the degree of urgency. The dependency inversion for interruptions lies in this mechanism: We're no longer dependent on interruptions, interruptions depend on us (i.e. the Pomodoros we allocate for calling back).

The feedback from people who start applying the Pomodoro Technique is often the same: they discover they can have up to 10 or even 15 external interruptions during a single Pomodoro (25 minutes). If the people doing the interrupting learn that you'll really call them back, and you're not just putting them off, it won't take long to see our habitual interrupters actually protecting the Pomodoro too. Many people who work with Pomodoro users say they have the feeling they're working or studying with people who know how to appreciate the value of their own time. In operational terms, handling this type of interruption is like dealing with internal interruptions. In this case, too, we work on two fronts simultaneously:

- Make these interruptions clearly visible. Every time someone or something tries to interrupt a Pomodoro, put a dash (-) on the sheet where you record your Pomodoros, apply the Inform, Negotiate, and Call Strategy. Then do one of the following:
  - Write down the new activity on the To Do Today Sheet under Unplanned & Urgent if it has to be done today, adding the promised deadline in brackets in the left-hand margin.
  - Write it down in the Activity Inventory, marking it with a "U" (unplanned); add a deadline in brackets if need be.
- Intensify your determination to finish the current Pomodoro. Once you've marked down the dash, continue working on the given task till the Pomodoro rings.

This way, you'll achieve the objective of remembering the commitment you made, as well as measuring daily external interruptions, without interrupting the Pomodoro. The example below shows two external interruptions handled in different ways during the second Pomodoro of Write an Article on *How to Learn Music* (fig. 2.17 and 2.18).

	TO DO TODAY	Rome, 12 July 2006 Mark Ross
	Write article on *How to Learn Music* (max 10 pps)	- - X
	Finetune *How to Learn Music* by reading it out loud	
	Condense *How to Learn Music* to 3 pps	
	UNPLANNED & URGENT:	
[15.40]	Email draft of article to Luke	

Figura 2.17 Things To Do Today Sheet: An unplanned urgent activity.

	ACTIVITY INVENTORY	Mark Ross
	...	
U[13July]	Make an appointment with Maestro Neri for interview	
	...	

Figure 2.18 Activity Inventory Sheet: An unplanned activity with a deadline.

If a Pomodoro absolutely has to be interrupted, either due to human weakness or for a real emergency, there's only one thing to do: void the current Pomodoro, even if it's about to ring. (Rule: A Pomodoro is Indivisible.) Then put a dash where you record Pomodoros to keep track of interrupted Pomodoros, and record the description and the deadline for the activity in the Unplanned & Urgent section. Then start the first Pomodoro for the urgent activity.

The Next Pomodoro Will Go Better.

The second objective to achieve in order to cut down on interruptions is to be aware of the number and type of external interruptions. Negotiate them and reschedule them depending on the real degree of urgency.

2.2.4 Systematic Interruptions

When applying the Pomodoro Technique, the first tangible consequence of having to systematically deal with internal and external interruptions is that Pomodoros earmarked for organizational activities emerge (emails, phone calls, meetings, etc.). The most natural and most common decision is to set aside one Pomodoro a day (or more if need be) to take care of urgent interruptions. The dependency inversion mechanism applied to protect the current Pomodoro actually serves to turn interruptions into Pomodoros dedicated to forms of communication. We should emphasize that Pomodoro users have the following objectives:

- To successfully delay these Pomodoros as far as possible, downgrading the degree of apparent urgency and incrementing the extent to which these activities can be controlled and scheduled
- To gradually cut down on the number of Pomodoros used for organizing the interruptions that come up throughout the day

People who start applying the Pomodoro Technique are always amazed when they measure the Pomodoros spent on work and study (without unhandled interruptions) and those used for organizational activities (which in part come from dealing with interruptions). In some teams, members start off with no more than 2-3 Pomodoros actually dedicated to work per day per person; the remaining Pomodoros are spent on meetings, phone calls, and emails.

2.2.5 Recording: Qualitative Estimation Errors in Planning

Look at the activities recorded daily and marked with a "U" in the Activity Inventory, and the ones marked Unplanned & Urgent on the To Do Today Sheet. By doing so, during the planning phase you can assess your ability to identify the number and type of activity that's most effective in reaching a given objective. The greater the number of unplanned activities involved, the greater the qualitative error in your initial estimate. So, you can measure the unplanned activities done to attain a certain objective. Clearly, you can also include the total number of internal and external interruptions on the Records Sheet to observe them and try to minimize them over time.

2.3 Objective III: Estimate the Effort for Activities

Once you've begun to master the technique and you've reached the first two objectives, you can start working on quantitative estimates. The long-term objective here is to successfully predict the effort that an activity requires.

The Activity Inventory lists all the activities that need to be done. These tasks come from planning, which is needed to identify ways to reach your objectives (for example, at the beginning of a project) and to deal with interruptions. Some activities lose their purpose over time, so they can be deleted from the Inventory.

At the start of each day, estimate how many Pomodoros each activity in the Inventory will take. Revise previous estimates, if need be. Record the estimated number of Pomodoros on the relative line (fig. 2.19). The Pomodoro estimate actually represents the number of Pomodoros needed for a certain number of people to accomplish an activity. So, this is a measure of effort. However, in the simple examples that follow, the number of Pomodoros always refers to one person.

	ACTIVITY INVENTORY	Lucy Banks
	...	
	Answer questions on thermodynamics in Ch 4	2
	Repeat laws of thermodynamics out loud to Mark	3
	Summarize laws of thermodynamics in writing	3
	Call Laura: invite her to the seminar on thermodynamics	
	Call Mark: give me my laptop back soon!	
	Call Andrew: buy tickets to concert?	
	Email Nick: how do you do ex. 2, p. 24?	
	...	

Figure 2.19 Activity Inventory Sheet: Daily estimate.

Estimates must always be based on complete Pomodoros, so figures like 5 ½ Pomodoro aren't allowed. In this case, count 6 Pomodoros. If an estimate is greater than 5-7 Pomodoros, this means that the activity in question is too complex. It's better to break it down into several activities; estimate these activities separately, and write them down on several lines in the Activity Inventory. The rule is: If It Takes More Than 5-7 Pomodoros, Break It Down. By doing so, not only do single activities become less complex, but estimates are also more accurate. This effect is magnified when the breakdown involves incremental activities, not simply smaller activities. (Incremental activities deliver a little bit of value at a time.)

If the estimate is less than one Pomodoro (e.g. the time it takes to call Laura to invite her to the thermodynamics seminar, or to call Mark to ask him to give back the laptop), similar activities should be combined till they add up to one Pomodoro of effort. The rule is: If It Takes Less Than One Pomodoro, Add It Up. So, there are two options for activities estimated to last less than one Pomodoro.

- Find and combine similar activities from the Activity Inventory until they add up to one Pomodoro of effort (fig 2.20).
- Leave the activity without an estimate and indicate that you'll combine it with another activity when you fill in the To Do Today Sheet.

	ACTIVITY INVENTORY	Lucy Banks
	...	
	Answer questions on thermodynamics in Ch 4	2
	Repeat laws of thermodynamics out loud to Mark	3
	Summarize laws of thermodynamics in writing	3
	Call Laura: invite her to the seminar on thermodynamics	
	Call Mark: give me my laptop back soon! + Call Andrew: buy tickets to concert?	1
	Email Nick: how do you do ex. 2, p. 24?	
	...	

Figure 2.20 Activity Inventory Sheet: Activities estimated at less than one Pomodoro.

In choosing one of the two possible strategies, remember that one of the functions of the Activity Inventory is to facilitate the choice of activities To Do Today. Take the first option if the activities in question are very similar or complementary; leave the other tasks without an estimate and combine them later. In any case, the greater the number of useful activities you have in the Activity Inventory, the simpler it will be to choose which strategy to use and how to combine the various tasks.

Note Any changes to the Activity Inventory can be made with a good pencil and an excellent eraser.

2.3.1 Available Pomodoros

Now that you have an estimate of the number of Pomodoros for each activity, you can decide to put together a set of activities that doesn't exceed the number of Pomodoros available in a day. Record these Available Pomodoros on the To Do Today Sheet; you would normally do so before actually listing the things to do. Figure 2.21 shows an example of eight Pomodoros available on July 12. Then, pick out the tasks to do for the day, combining activities if necessary. (Rule: If It Lasts Less Than One Pomodoro, Add It Up.) Write the activities you've chosen in order of priority on the To Do Today Sheet. For each one, every estimated Pomodoro is represented by an empty box (fig. 2.21).

	TO DO TODAY	Rome, 12 July 2006 Lucy Banks Available Pomodoros: 8
	Answer questions on thermodynamics in Ch 4	☐☐
	Repeat laws of thermodynamics out loud to Mark	☐☐☐
	Summarize laws of thermodynamics in writing	☐☐☐

Figure 2.21 To Do Today Sheet: Estimated Pomodoros.

There's no point in adding activities beyond the total estimated eight Pomodoros. If the number of estimated Pomodoros is higher than the number of Pomodoros actually needed to complete the activities, the remaining number of Pomodoros can only be considered once you're finished. Then you can choose tasks from the Inventory to fill in that extra time.

2.3.2 Possible Scenarios

Set the timer, and as always, begin with the first activity on your list. Every time the Pomodoro rings, put an X in the first empty box (fig. 2.22).

	TO DO TODAY	Rome, 12 July 2006 Lucy Banks Available Pomodoros: 8
	Answer questions on thermodynamics in Ch 4	☒☐
	Repeat laws of thermodynamics out loud to Mark	☐☐☐
	Summarize laws of thermodynamics in writing	☐☐☐

Figure 2.22 To Do Today Sheet: First Pomodoro estimated and accomplished.

If you finish the activity in the exact number of estimated Pomodoros, cross out the description of the activity as in Figure 2.23.

	TO DO TODAY	Roma, 12 July 2006 Lucy Banks Available Pomodoros: 8
	~~Answer questions on thermodynamics in Ch 4~~	☒☒
	Repeat laws of thermodynamics out loud to Mark	☐☐☐
	Summarize laws of thermodynamics in writing	☐☐☐

Figure 2.23 To Do Today Sheet: Activities done in the exact number of estimated Pomodoros.

If you finish the activity in fewer Pomodoros than you estimated (overestimation error), again, cross out the description of the activity (fig. 2.24).

	THINGS TO DO TODAY	Rome, 12 July 2006 Lucy Banks Available Pomodoros: 8
	~~Answer questions on thermodynamics in Ch 4~~	☒☒
	~~Repeat laws of thermodynamics out loud to Mark~~	☒☒☐
	Summarize laws of thermodynamics in writing	☐☐☐

Figure 2.24 To Do Today Sheet: Underestimation.

If you've used up the estimated Pomodoros and you still need more Pomodoros to finish the task you're working on (quantitative underestimation error), you can do one of two things:

- Continue and mark down the next Pomodoros without taking into account new estimates. Below is an example of a case where another Pomodoro is needed to complete an activity (fig. 2.25).

	TO DO TODAY	Rome, 12 July 2006 Lucy Banks Available Pomodoros: 8
	~~Answer questions on thermodynamics in Ch 4~~	☒☒
	~~Repeat laws of thermodynamics out loud to Mark~~	☒☒☐
	~~Summarize laws of Thermodynamics in writing~~	☒☒☒×

Figure 2.25 To Do Today Sheet: Overestimation.

- Make a new estimate, in Pomodoros, and mark these new estimated Pomorodos to the right of the last estimated and completed Pomodoro using a different color or shape. This way, you can highlight the need for second or third estimates and verify relative error (fig. 2.26).

	TO DO TODAY	Rome, 12 July 2006 Lucy Banks Available Pomodoros: 8
	~~Answer questions on thermodynamics in Ch 4~~	☒☒
	~~Repeat laws of thermodynamics out loud to Mark~~	☒☒☐
	Summarize laws of thermodynamics in writing	☒☒☒○○

Figure 2.26 To Do Today Sheet: Second estimate.

As you can see from Figure 2.27, the summary took Lucy four Pomodoros, three of which were originally estimated (underestimation) and only one of the two estimated later (overestimation).

	TO DO TODAY	Rome, 12 July 2006 Lucy Banks Available Pomodoros: 8
	~~Answer questions on thermodynamics in Ch 4~~	☒☒
	~~Repeat laws of thermodynamics out loud to Mark~~	☒☒☐
	~~Summarize laws of Thermodynamics in writing~~	☒☒☒⊗○

Figure 2.27 To Do Today Sheet: Finishing the activity with the second estimate.

Since tasks don't usually tend to last more than seven estimated Pomodoros (Rule: If It Lasts More Than 5-7 Pomodoros, Break It Down.), usually there are no more than three estimates. All the activities that require a third estimate have to be carefully reconsidered to understand the reasons why estimating was so complicated.

2.3.3 Recording Estimates

Clearly, now that we've introduced the concept of quantitative estimates, the objectives of the reporting system can be more ambitious. New objectives could be:

- To measure the accuracy of estimates, analyzing the gap between estimated effort and actual effort (estimation error) for every activity
- To show where more estimates were needed (second or third estimates)

Now the Records Sheet has to be modified. Depending on the case in question, the report could show estimates, actual effort and related error. Below two simple options for visualizing this information are provided.

Date	Time	Type of Activity	Description of Activity	Estimate	Real	Diff.
12 July 2006	10:00	Study	Answer questions on thermodynamics in Ch 4	2	2	0
12 July 2006	11:30	Repeat	Repeat laws of thermodynamics out loud to Mark	3	2	-1
12 July 2006	14:00	Summarize	Summarize laws of thermodynamics in writing	3	4	1

Figure 2.28 Records Sheet: Only first estimate.

Date	Time	Type of Activity	Description of Activity	Estimate	Real	Diff I	Diff II
12 July 2006	10:00	Study	Answer questions on thermodynamics in Ch 4	2	2	0	
12 July 2006	11:30	Repeat	Repeat laws of thermodynamics out loud to Mark	3	2	1	
12 July 2006	14:00	Summarize	Summarize laws of thermodynamics in writing	3+2	4	-1	1

Figure 2.29 Records Sheet: First and second estimates.

There are many possible ways to present the results that you're tracking. The complexity of the reporting objectives is not yet too high, and reports can be had directly from the records sheet with just a few calculations done by hand. The more complex the calculations,

the more you'll want to make use of databases, spreadsheets and *ad hoc* software applications. Remember: always keep recording activity as simple as possible.

The first objective of improving quantitative estimates lies in eliminating the third estimate, and keeping the overall margin of error small. The next objective is to eliminate the second estimate, again keeping the overall margin of error small. The final objective is to reduce the margin of error in the first estimate.

2.3.4 Managing Exploration

Not every activity can be estimated. At the outset of a new project or a study activity, it's especially beneficial to spend time on exploration: look for new sources, get an idea of the structure of the texts you have to study or consult, define your objectives more clearly. To guide exploration, it's worthwhile to apply the concept of time-boxing. Decide on a number of Pomodoros for completing your exploration. When these Pomodoros are finished, set up your real work plan or start in on a specific activity or decide if you want to keep on exploring and what direction you want to take.

2.4 Objective IV: Make the Pomodoro More Effective

When you can systematically use the Pomodoro without interruptions, and you start to master estimating, you can evolve the Pomodoro Technique even further.

2.4.1 The Structure of the Pomodoro

The first evolution has to do with the structure of the Pomodoro. The first three to five minutes of each Pomodoro can be used to briefly repeat what you've learned since the beginning of the activity (not just the last Pomodoro), and then to print this in your memory. The last three to five minutes of a Pomodoro can be used to quickly review what you've done (if possible, with an effect-cause procedure, starting from the last activities and going back to your initial motivations).

Note These last few minutes of the Pomodoro serve to review what you've done. If you want to check the quality and methods of your work to pinpoint potential improvement, you should plan one or two Pomodoros to do so. (Quicker observations are made daily during the recording Pomodoro.)

These changes don't require variations in the length of the 25-minute Pomodoro. The enhanced awareness of time you can achieve by using the Pomodoro will enable you to physiologically sense the 3-5 minute intervals mentioned above. If you have a hard time doing so, this may be a sign that you haven't yet mastered the basic technique.

2.4.2 The Structure of the Pomodoro Set

There is a second evolution that has to do with the four-Pomodoro set. As above, the first Pomodoro in a set of four, or part of this first Pomodoro, can be used to repeat what you've done so far. Likewise, all or part of the last Pomodoro in the set can be used to review what you've accomplished. Repetition and revision activities are more effective if you do them out loud or by talking with a partner or member of your team. Systematic repetition and revision stimulates the effects of *overlearning,* facilitating the acquisition of new information.

2.5 Objective V: Set Up a Timetable

There are a number of reasons why you should never underestimate the importance of defining and respecting a timetable.

- A timetable sets a limit. Limits (when they're truly understood as inviolable) help us to be concrete, to do things. They motivate us to do our best to complete the tasks before us within a set period of time. The same thing happens when the Pomodoro rings.

- A timetable delineates the separation between work time and free time; the latter is best defined as time set aside for non-goal oriented or *unplanned activities* (15). This leisure time is fuel for our minds. Without it, creativity, interest, and curiosity are lost, and we run ourselves down until our energy is depleted. Without gas, the engine won't run. (4)
- A timetable measures the results of the day. Once we've written up the To Do Today Sheet, our goal is to carry out the activities listed on it with the highest possible quality within the set timeframe. If time runs out and these activities aren't done, we try to understand what went wrong. In the meantime, we already have an invaluable piece of information: how many Pomodoros we managed to work that day.

With the Pomodoro Technique, figuring out how much time is wasted isn't important; how many Pomodoros we've accomplished is. The next day, keep that number in mind when deciding how many Pomodoros are available, and write down activities to fill only those Pomodoros.

The main risk with the timetable is in underestimating how important it is; it's easy to fall in the trap of not respecting it. For example, let's say it's 3 PM. You've lost time during the day, and you know you haven't produced as much as you could have or as much as you expected. So you tell yourself: "Today I'll work late to make up for lost time." A combination of heroism and guilt makes you breach the limit set by the timetable; as a result your performance is ineffective tonight, then tomorrow night, and then the night after. The more the timetable is systematically prolonged, the more overall results will diminish. Guilt intensifies. Why? Isn't playing the hero enough? Don't the hours sacrificed in the name of work assuage the guilt?

Actually what emerges is a dangerous vicious circle: the timetable protracts, fatigue increases, productivity drops, the timetable protracts. First and foremost, an effective timetable has to be respected. Respecting a timetable means developing immunity to the Five More Minutes Syndrome. When your work time is up, just like when the Pomodoro rings, all activity stops. Secondly, an effective timetable has to allow for the free time that's needed to recoup.

Note It may happen that an important deadline comes up and you find yourself having to work longer hours. This overtime can be factored in to your timetable to momentarily increase productivity. Typically to achieve positive results and avoid the risk of the vicious circle mentioned above, you shouldn't work overtime for more than five days. Establish an *ad hoc* timetable for this period, and set aside a recovery period to deal with the drop in productivity that will inevitably follow.

2.5.1 The Best Case Scenario

Let's use the following timetable as an example: 8:30-1:00 / 2:00-5:30. It's 8:30 AM. Albert winds up the first Pomodoro of the day. He might use this Pomodoro to look over all the things he did the day before, to skim over the Activity Inventory and fill in the To Do Today Sheet, which will also include this planning activity. In this same organizational Pomodoro, Albert checks that everything on his desk is in place and ready, and tidies up if it's not. The Pomodoro rings, X, break.

Another Pomodoro begins, the first operational Pomodoro. And on it goes for two more Pomodoros. The four-Pomodoro set is over; a longer break. Despite the fact that he really wants to keep on working, Albert decides to take a bit more downtime in anticipation of the intense work day ahead. After 20 minutes or so, he winds up a new Pomodoro. He continues for a total of four Pomodoros, and then checks his watch. It's 12:53. He has just enough time to tidy up his desk again, put away any papers that need filing and check that the To Do Today Sheet is clear and properly filled out, and then he goes to lunch.

By 2:00 Albert is at his desk again. He winds up the Pomodoro and gets back to work. He doesn't take much of a break between one Pomodoro and the next. But after four rings he starts feeling tired. He still has a few more Pomodoros to go. He wants to get a good rest, and he tries to detach as best he can by taking a little walk. Thirty minutes later, Albert winds up a new Pomodoro. It rings, X, break. Albert sets aside the last Pomodoro to look over what he got done during the day, fill in the Records Sheet, jot down some comments on potential room for improvement, makes notes on the To Do Today Sheet for the next day, and tidies up his desk. The Pomodoro rings. Quick break. Albert looks at his watch. It's 5:27. He straightens any papers that are out of place, and puts the activity sheets in order. At 5:30 free time begins.

Two comments on this scenario:

- The operational Pomodoros never coincide with the number of work/study hours. With eight hours of work/study, two Pomodoros are earmarked for organizational activities (one hour) and twelve (six hours) for operational activities.
- The time that goes by is always a secondary factor with the Pomodoro Technique. If there are no unhandled interruptions, the end of the morning or afternoon will be determined simply by the succession of Pomodoros. The timetable is reinforced by sets of Pomodoros. It doesn't matter what time it is, because our guide is the sequence of Pomodoros with respective breaks. In terms of the timetable in our example, we have [1+3],[4]:[4],[1+1].

2.5.2 A Scenario With Interruptions

Let's say it's the second Pomodoro in the second set of the scenario above.

Albert gets interrupted and can't deal with the interruption. That can happen. The Pomodoro is void. Finally Albert is free to get back to work again. He checks the time. It's 12:20. In a few seconds he reorganizes the last session; at this point there's only one Pomodoro left to do. He still takes a quick break before setting the next Pomodoro. In fact, he decides to take a bit more time to try to find his focus. When he feels ready, Albert winds up the Pomodoro and starts with the second Pomodoro in the set. (The first one was interrupted.)

In the afternoon, at the end of the third set of four Pomodoros, Albert feels like he needs more than a 3-5 minute break. He decides to take a half-hour walk. Before going out, he quickly modifies the last set, which was originally two Pomodoros long, to just one organizational Pomodoro. If there's extra time, he'll tidy up his desk and check his incoming emails. Albert gets back from his walk at 4:47. He winds up the Pomodoro…it rings, X, break. Free time.

2.5.3 Optimizing Your Timetable

A work day contains several Pomodoros. How should you organize them to make the day more effective? Optimizing your work schedule is the result of a continual process of observation and feedback. The objective is to reinforce the concept of a regular succession of activity as much as possible.

For people who have an entire day to study, an initial timetable might be: 8:30-12:30, 1:30-5:30. Two sets made up of four and three Pomodoros respectively in the morning, and two sets consisting of four and three Pomodoros respectively in the afternoon: [4],[3]:[4],[3]. The sets determine when to take breaks.

The Pomodoros within each set can be organized even further. For example, you could earmark the first Pomodoro in the first session for planning your day, and the following three for studying new topics, along with the next two Pomodoros from the second set. The last Pomodoro in the second group is set aside for checking and answering emails, listening to voice mail, and calling classmates, if need be. This is a way to respond effectively to possible interruptions intercepted during the morning. The first Pomodoro of the third set is for looking over what you did in the morning. The next three Pomodoros are to spend on studying. The first two Pomodoros of the fourth set are used to revise what you've learned today and in the past few days. The last Pomodoro of the day is destined for tracking and analyzing data. So, your timetable looks something like this: [1+3],[2+1]:[1+3],[2+1].

The basic assumptions with this study schedule are that usually people are more productive in the morning, and more importantly the afternoon hours just after lunch are not very effective. Clearly, these assumptions are subjective. Why do we refer to an initial timetable? Because by gathering information on how you work/how you're working, in other words by tracking metrics of Pomodoros completed and other indicators every day, students can learn to pinpoint which set of Pomodoros is most productive for studying, revising, or being creative. Knowing this, they can consciously modify their study schedule, starting earlier or later, extending certain sets and reducing others, learning to know themselves better.

Here's the key to organizing a timetable: make conscious decisions on how to set it up. Up to this point, sets of four Pomodoros have been used because this amount is usually considered most effective. But you can also use longer or shorter sets lasting, say, three or five Pomodoros. At the end of the set comes a 15-30 minute break. In order to be effective, a timetable should also have the following features: it should be destined to change over time, and

it can be made of sets of differing numbers of Pomodoros, giving preference to those lasting four Pomodoros.

Note Experience teaches that when the seasons change, your timetable needs to change too.

2.6 Other Possible Objectives

Up to this point, this paper has described the basic Pomodoro Technique. Until now, by simple tracking and recording activities, and with very little processing, we've come up with useful reports on effort per activity, and on errors in qualitative or quantitative estimates. Clearly, if we want to improve, the reporting objectives will change over time. It wouldn't be useful to track and record every possible metric, obviously, but only the ones that enable us to observe what we want to consolidate or improve. The Pomodoro Technique was conceived to be flexible in the face of these kinds of changes. To make tracking and recording new metrics possible, we have to modify the different sheets, as shown in the previous paragraphs. While making these alterations, it's essential to keep some key criteria in mind that serve to preserve the adaptive capability of the Technique. In order of importance:

1. Always remember that using technology means an increase in complexity due to the relative learning curve, and less flexibility as compared to paper, pencil, and eraser.
2. Keep Tracking at the lowest possible level of complexity (even delegating small tasks to Recording). Choose simple tools for this activity: using paper, pencil and eraser serves as a useful mental exercise.
3. Keep recording simple by using the tools best suited to the complexity you have to manage. Before turning to a spreadsheet or a database, see if there's a more effective way to do Recording with paper, pencil, and eraser. Before using ad hoc software, see if there's a more effective way to do Recording with a spreadsheet or a database.
4. If Processing and Visualizing become difficult, complex, and repetitive, you first have to ask yourself if all the metrics you're observing are really necessary. If so, you should consider using spreadsheets, a database, or an ad hoc software program. A simple excel sheet can readily handle operations such as: reclassifying activities by type, filtering activities by word, grouping and applying calculations to selected activities.
5. Imagination is the most powerful tool for preventing complexity from growing.

For example, in the previous paragraphs, we looked at a case with a single objective: writing an article on How to Learn Music. This objective is achieved by means of a series of tasks. But you might find yourself having to consider a number of objectives to achieve simultaneously. How to you distinguish between them?

Depending on the circumstances, you can change how you write the description, so as to highlight the objective (Fig. 2.30). Another option is to include a new box labeled Objectives in the Activity Inventory, on the To Do Today Sheet, and on the Records Sheet, where you can write down a description of the objective, or an abbreviation or code that stands for it. To calculate the total effort expended to achieve a given objective, add up the effort it took to do the related activities.

	TO DO TODAY	Rome, 12 July 2006 Mark Ross
	How to Learn Music: write article (max 10 pps)	
	How to Learn Music: finetune by reading out loud	
	How to Learn Music: condense to 3 pps	

Figure 2.30 To Do Today Sheet

You might want to calculate how long it takes to reach certain objectives or perform given activities (2). To do so, you simply measure the time from the date of completion back to the date when you wrote in or assigned the activity. Since you already have the completion date for the activity (on the To Do Today Sheet), in the first case you'll need to track the date you slotted that activity into the Activity Inventory; in the second case, track the date you wrote it on the To Do Today Sheet. On the Records Sheet you can track Pomodoros of effort over several days for the same activity.

In any case, choosing which metrics to track and record has to be subordinate to the choice of improvement objectives. In this case, the metrics system will grow incrementally on the basis of real need, keeping tracking complexity to a minimum.

3 Results

The Pomodoro Technique has been successfully applied in various types of activities: organizing work and study habits, writing books, drafting technical reports, preparing presentations, and managing projects, meetings, events, conferences, and training courses. Here are some observations that have emerged from the experience of people and teams who have applied the Pomodoro Technique.

3.1 Learning Time

It takes no time at all to apply the Pomodoro Technique. Mastering the Technique takes from seven to twenty days of constant application. If used in pairs or teams, it's easier to implement the technique consistently.

Note Experience shows that applying the Technique in teams or organizing work in pairs results in less learning time and more consistent results. In these cases, each pair works with their own Pomodoro.

3.2 The Length of the Pomodoro

In terms of how long a Pomodoro lasts, two forces have to be kept in balance to maximize effectiveness:

- The Pomodoro has to represent an effective atomic measure of work. In other words, the Pomodoro has to measure equal units of continuous effort; as such these units are comparable with others. The problem is that, as everyone knows, all time is not equal in terms of the output of effort. All months aren't equal: December is shorter in terms of number of productive days and so is August in Mediterranean countries. Likewise, all the weeks in a month aren't equal: we don't give the same effort every single week. All the days in a week aren't equal: some days you can work 8 hours, others only 5 if you need to travel or go to the dentist; in still other days you may work 10 or 12 hours (less often, hopefully). Even all the hours in a day aren't equal: not every hour produces the same amount of effort, mostly because of interruptions. As a unit of measure, much smaller time intervals such as 10 minutes might not be interrupted, but they don't allow us to achieve appreciable results, and tracking becomes much too intrusive. So as far as this first force, half an hour seems to be ideal.
- The Pomodoro has to encourage consciousness, concentration, and clear-minded thinking. It's been proven that 20- to 45-minute time intervals can maximize our attention and mental activity, if followed by a short break (15).

In light of these two forces, we've come to consider the ideal Pomodoro as 20 – 35 minutes long, 40 minutes at the most. Experience shows that the Pomodoro Technique works best with 30-minute time periods.

Note In various work groups which experimented with the Pomodoro Technique in mentoring activities, each team was allowed to choose the length of their own Pomodoro on the condition that this choice had to be based on observations regarding effectiveness. Generally, the teams started off with hour-long Pomodoros (25 minutes seemed too short at first), then moved to 2 hours, then down to 45 minutes, then 10, till they finally settled on 30 minutes.

3.3 Varying the Length of Breaks

The length of breaks depends on the how tired you feel. Breaks at the end of a set should last from 15 to 30 minutes. For example, if you've kept up an intense rhythm throughout the whole day, at the end of the next to last set of Pomodoros your break will naturally last 25 minutes. If

you have to solve a very complicated problem, you'll need a 25-minute break between every set. If you're especially tired, it's possible and even beneficial to lengthen breaks between sets every so often. But breaks that consistently exceed 30 minutes risk interrupting the rhythm between sets of Pomodoros. More importantly, this sets off an alarm signaling the need for rest and free time!

It would be a serious mistake to take shorter breaks between sets because you're under pressure. Your mind needs time to integrate and get ready to receive new information to solve the upcoming problems in the next Pomodoro. Taking a shorter break because you're in a rush could lead to a mental block in finding solutions.

Note For beginners, once the last Pomodoro in the set of four is up, it's a good idea to set the timer for 25 minutes and start the break. The aim here isn't to rigidly impose 25 minutes, but to ensure you don't go over 30 minutes of break time. This should be done only at the beginning. In time, you'll realize how tired you are and understand when you're refreshed and ready to start again.

The same can be said for breaks between Pomodoros, which should be no less than 3-5 minutes. When you're especially tired, you can stop working for up to 10 minutes. Remember, though, that downtime between Pomodoros that consistently lasts more than 5-10 minutes risks breaking the rhythm between Pomodoros. It would be better to finish the current set and take a 15-30 minute break. The best way to manage your resources is to work strategically, first increasing the breaks between sets, and then extending the breaks between Pomodoros, if need be.

The most fitting metaphor for managing breaks is long-distance runners. At the start of the marathon, they know they have the energy to run faster, but they also know their limits and the difficulty of the challenge ahead. They manage their resources to achieve the best result at the finish line.

3.4 A Different Perception of Time

The first benefit that comes from applying the Pomodoro Technique, which is already apparent in the first few days, is sharper focus and concentration that comes from a different perception of time. This new perception of time that passes seems to elicit the following sensations:

1. The first 25-minute Pomodoros seem to pass more slowly.
2. After a few days of constant application of the Pomodoro, users say they can actually feel the mid-way point of the 25 minutes.
3. By the end of the first week of constant application of the Pomodoro, users say they can actually feel when 5 minutes are left on the Pomodoro. In fact, many people report having some sense of fatigue during these final minutes.

We can stimulate this ability to feel time in a different way by means of a series of exercises which serve to enhance consciousness of passing time among Pomodoro users. This different awareness of the passage of time seems to lead Pomodoro users to a higher level of concentration in performing the activity at hand.

3.5 Sounds of the Pomodoro

The Pomodoro emits two sounds: it ticks and it rings (after 25 minutes). As regards these sounds, there are several things to consider from two different perspectives: Pomodoros users, and people sharing the same work space with Pomodoro users.

3.5.1 People Who Use the Pomodoro

Let's first consider Pomodoro users. When they start applying the Pomodoro Technique, the ticking and ringing can be annoying. There are various ways to make these sounds softer, but experience shows that in time (even with just a few days of constant application) two things happen:

- The ticking becomes a calming sound. "It's ticking and I'm working and everything's fine."

- After a while, users don't even hear the ring because their level of concentration is so high. In fact, not hearing the Pomodoro ring actually becomes a real problem in some cases.

Clearly the different sensations that are elicited by the same sounds are signs of a profound change in the perception of time that passes.

3.5.2 People Who are Subject to the Pomodoro

Now consider people who have to "put up with" the Pomodoro. This situation would arise when the Technique is used in a shared space, for example study halls at a university or an open space work environment. To respect the people who don't use the Pomodoro, a number of solutions have been tested. In order of effectiveness, there are: watches that count down 25 minutes and then flash or beep softly; cell phones with software applications that vibrate or make the display flash (for example the PomodoroMobile by XPLabs); kitchen timers with muted rings; Pomodoro computer software, aka soft-Pomodoro (first among these is the JTomato by Bruno Bossola). The ticking and ringing of several Pomodoros in an environment where a team is using the Pomodoro Technique isn't considered bothersome.

3.6 Shapes of the Pomodoro

Obviously, the kitchen timer you use doesn't have to be shaped like a tomato. Apples, pears, oranges, toasters, cooks, spheres, and UFOs: the market for timers is a varied as it is upbeat. Choosing your own Pomodoro (or we should say timer) makes the Technique more enjoyable and more accessible.

3.7 Ring Anxiety

With the first few Pomodoros when learning the Technique, there may be some anxiety from the feeling of being controlled by the Pomodoro. Experience shows that this feeling mainly emerges in two cases:

- among people who are not used to self-discipline
- among people who are very oriented toward achieving results

In both cases, it will prove difficult to concentrate on the primary objective of the Technique: empowering each person to improve his or her work or study process through self-observation.

For people who aren't used to self-discipline, ring anxiety generally comes from the fear that the Pomodoro Technique might be used to externally monitor their progress. It's important to stress that the aim of the Technique is not to carry out any sort of external analysis or control. With the Pomodoro Technique, there is no inspector who monitors workers' hours and methods in a Tayloristic fashion. The Pomodoro Technique mustn't be misconstrued as a form of this kind of external control. Instead, the Pomodoro Technique was created to satisfy the personal need to improve, and it has to be applied spontaneously.

Cases of results-oriented people are more common. If every tick seems like an invitation to work quickly, if every tock repeats the question, "Am I going fast enough?" these are signs of full immersion in what we might call the *Becoming Syndrome*. And today this is quite common. The underlying fear people have here is usually the inability to demonstrate their effectiveness as fully as they'd like to others and to themselves. The Pomodoro is a method for comparison, if not with others then at the least with themselves, and every tick and tock seems to reveal their lack of ability. Under pressure from time that passes, they look for shortcuts, but this isn't the way to go faster; shortcuts lead to defects and interruptions which feed into their fear of time in a vicious circle. How can they come to hear the ticking as a calming sound? The idea, the solution might be just around the corner with the next tick, but they'll miss it if they keep thinking how fast time is passing.

The first thing to learn with the Pomodoro Technique is that seeming fast isn't important, reaching the point of actually being fast is. You do this by learning to measure yourself, observe how you work, and develop the value of continuity. This is why the first objective to achieve with the Pomodoro Technique is simply to mark down the Pomodoros you've done.

If it takes four Pomodoros to draft a simple two-page review, it's not important that you expected to finish in two Pomodoros, or that you want to show everyone that you can finish in two Pomodoros. What's important is to find out how to go from four to two.

The initial challenge is knowing how to analyze how you work on the basis of test measurements collected every 30 minutes and not having expectations as to the result. Simply work, track, observe, and change in order to improve, if need be. Once this point is understood, the ticking starts to have a different sound. You need to concentrate to be fast.

The next step is to estimate and – why not? – even challenge yourself to succeed in completing a given activity within the estimated time. This is one of the rules of the game for the Pomodoro Technique; but never take shortcuts! The Xs marking completed Pomodoros are frustrating when they get closer and closer to the last estimated Pomodoro box. But you have to be brave and keep on working, staying calm and concentrated, to be successful. Stimulating the value of continuity leads to productivity and creativity. Every tick of the Pomodoro, if you hear it, is an invitation to stay focused, alert, and to continue.

Note At first, even getting through a single Pomodoro a day without interruptions is an excellent result, because it allows you to observe your process. The next day your effort will be focused on completing at least one Pomodoro with no interruptions, possibly two or more. With the Pomodoro Technique, the number of Pomodoros you finish doesn't matter so much as the pathway to consistently achieving more Pomodoros. This same incremental approach should be used when you take up the Pomodoro Technique again after you haven't used it for some time (for example, when you get back from a vacation). In this case, it takes patience and a bit of training to consistently reach 10-12 Pomodoros a day.

3.8 Constant Internal Interruptions

When you perceive internal interruptions as things that can't be postponed, it becomes difficult to complete even a single Pomodoro in a whole day. In these cases, we suggest you set the Pomodoro for 25 minutes and force yourself, Pomodoro after Pomodoro, to increase (and more importantly never reduce) the time you work non-stop. The final objective is to get to the 25-minute mark having worked continuously, with no interruptions. "In this Pomodoro I've managed to work for 10 minutes without interruptions, in the next one I'm going to work no less than 10 minutes, maybe even just one minute more." Results come Pomodoro after Pomodoro.

3.9 The Next Pomodoro Will Go Better

The feeling of having the time to do things and not using it well is often incapacitating. Your mind starts wandering from the past to the future: "If I had done that research on Internet yesterday, and last week I'd sent that email...How will I deliver the report by next week?" This provokes feelings of guilt and creates anxiety-filled situations.

The Pomodoro Technique allows you to keep your focus on the current Pomodoro, or once that's done, on the next Pomodoro. Your attention is trained on the here and now, emphasizing the search for a concrete way to stimulate the value of continuity and carry out activities in the most reasonable order.

When you feel lost, a Pomodoro can be dedicated to explorationin order to set your priorities straight and lay out a new plan. If your ideas are clear but something's missing – maybe determination, maybe a bit of courage - wind up the Pomodoro and start working on it, without waiting for time.

People who have the habit of procrastinating say that they benefit from the fact that the Pomodoro enables them to concentrate and achieve little things (activities that take 5-7 Pomodoros worth of effort, at the most), without having to worry about *every* thing. One Pomodoro at a time, one activity at a time, one objective at a time. For personality types with a strong tendency to procrastinate, it's important to realize that the initial objective is to finish one Pomodoro: 25 minutes of work on a given activity, without interruptions.

3.10 A Mechanical Pomodoro or Pomodoro Software

What kind of Pomodoro is most effective: a mechanical timer or a Soft-Pomodoro for the computer? Speaking from experience, the most effective Pomodoro is always the kitchen timer. In any case, to guarantee the highest possible effectiveness, the Pomodoro has to meet a number of requirements:

- You have to be able to actually wind it up. The act of winding up the Pomodoro is a declaration of your determination to start working on the activity at hand.
- It has to clearly show how much time is left, and it should make a ticking sound as time passes. This is a way we can practice feeling time and staying focused.
- It should make an audible, easily identified sound to signal that time's up.

What's more, to mark the end of a Pomodoro or to eliminate a finished activity from the To Do Today Sheet, Pomodoro practitioners should use explicit gestures. For this reason it's better if these aren't automated.

3.11 Improving Estimates

One of the more tangible results that can be attained with the Pomodoro Technique involves improving the ability to estimate. This develops along two pathways:

- Improvement of quantitative estimates by reducing the error between estimated Pomodoros and actual Pomodoros. In other words, while planning the day's tasks, the effort needed to complete a given activity can be accurately predicted. Self-observation and 30-minute measurements are the basis for more exact estimates. Experience shows that a positive sign of improvement in estimation is when the number of cases of underestimation is equal to the number of cases of overestimation. A strategy oriented toward systematic overestimation or underestimation does not lead to quantitative improvement. Learning to estimate is essential in order to be effective.
- Improvement of qualitative estimates by reducing the number of activities that weren't included in the planning phase. In other words, while planning the day's tasks, the number and type of activity that actually has to be done can be pinpointed (weak version), or better still the specific set of activities that serve to achieve the given objective with the least possible effort can be identified (strong version). Overall underestimation happens when we don't correctly identify the activities that have to be done, or we don't realize that the activities we have identified aren't the most effective. With the Pomodoro Technique, unplanned activities are tracked when they emerge. Observing and understanding the nature of these activities allows Pomodoro users to hone their forecasting and organizing skills.

Why does the Pomodoro Technique improve both aspects of estimation? One of the common causes of quantitative and qualitative improvement is that the activities we measure are continually divided up according to the rule: If It Takes More Than 5-7 Pomodoros, Break It Down. Smaller activities are more understandable and easier to estimate, so the margin of error shrinks. Smaller activities (but not too small) enable us to recognize simpler solutions. In fact, the aim of breaking down activities should never be simply to divide them up as far as possible. Instead, the point is to identify incremental paths which have the lowest possible complexity.

3.12 Motivation and the Pomodoro

With the Pomodoro Technique, three factors contribute to boosting personal motivation:

- Completing several activities a day that aren't too simple or too complex (Rule: If it Takes More than 5-7 Pomodoros, Break It Down.), which serve to reach your objective (13).
- Directly influencing personal improvement on a day to day basis.
- Being aware of how you work/how you're working thanks to continual observation and measurement.

3.13 And If Everything Goes Completely Wrong?

What should you do if you get caught up in a rush, or if you have a case of nerves or a panic attack? If you start feeling the anxiety of *becoming* and the deadline is getting closer by the second? What should you do in case of total paralysis? That can happen. It's only human. The Pomodoro Technique is extremely useful in these circumstances.

First, take a look at the situation. Try to understand what went wrong during the last Pomodoro. If necessary, reorganize activities; be open to new things to include and possible innovative strategies for pinpointing essential tasks. Focus on the next Pomodoro. Keep on working. Concentration and consciousness lead to speed, one Pomodoro at a time.

If you're especially tired, you need to organize shorter sets (for example three Pomodoros) and take longer breaks between sets. The more tired you are, or the more behind or panic-stricken you feel, the more important it is to repeat and review rather than to forge ahead at all costs. The key objective is never to recover lost time, but instead to be focused on taking the next step on your chosen path, which you often - consciously - change.

3.14 The Pomodoro Has a Limit

The main disadvantage of the Pomodoro Technique is that to reach your goals effectively, you need to accept being helped by a little mechanical object. Discontinuing the use of the Pomodoro Technique actually diminishes most of the positive effects described above. Though you still retain the ability to break down activities incrementally, and you might keep on taking short breaks, the discipline ensured by the Pomodoro seems to be the key to maintaining a high level of effectiveness.

3.15 When Not To Use the Pomodoro

The Pomodoro Technique shouldn't be used for activities you do in your free time. In fact, applying the Pomodoro would make these activities scheduled and goal-oriented. That's no longer free time. If you decide to read a book simply for leisure, you shouldn't use the Pomodoro Technique; doing so would be taking those Pomodoros away from unscheduled free time.

4 Conclusions

In actual fact, the positive effects of the Pomodoro Technique on individual or team productivity come from a number of different factors; below an attempt is made to summarize them.

4.1 Inverting the Dependency on Time

The Pomodoro represents an abstraction of time, a box that can hold and limit *becoming* and on which time depends, in the end. It's precisely by breaking and inverting our dependency on *becoming* that a different vision of time emerges. By measuring ourselves against a finite abstraction of time - the Pomodoro - we can succeed in breaking our direct dependency on the concept of *becoming*.

Specifically, the time-boxing concept together with the typical Pomodororian notion of time running backwards (from 25 minutes to 0) generate positive tension (*eustress*) which is capable of facilitating the decision-making process. In more general terms, this stimulates the vital contact you need to assert yourself and at the same time accomplish activities.

The passage of time is no longer perceived as negative, but positive. Every Pomodoro represents the opportunity to improve, or in crisis situations, to rapidly reorganize. The more time passes, the better chance you have to improve your process. The more time passes, the more easily activities can be estimated and scheduled. The more time passes, the more the feeling of anxiety is assuaged, and in its place come enhanced consciousness, sharper focus on the here and now, and a clearer mind in deciding your next move. The result is higher productivity.

Moreover, the same dependency inversion mechanism is applied in the Pomodoro Technique to reduce and eliminate interruptions. This increases concentration and continuity in work, and here too there is a considerable correlated rise in productivity.

4.2 Regulating Complexity

We can maximize our motivation by accomplishing several challenging activities every day that are neither too complex nor too easy, simply by applying the following rules:

- If It Lasts More Than 5-7 Pomodoros, Break It Down.
- If It Lasts Less Than One Pomodoro, Add It Up.

Less complex activities are usually easier to estimate, so quantitative estimates improve. Breaking down activities so they deliver incremental value also bolsters our determination to attain our objectives.

4.3 Detachment

Frequent breaks with the Pomodoro are essential to achieving more lucid, conscious and effective mental capacity with a resulting increase in productivity. It is important to note that in many environments there's a sort of aversion to breaks, as if they were a sign of weakness. Common wisdom in many companies seems to be: "Real managers start the meeting at 9 AM and end at 10 PM and never leave their office." This extreme behavior at work actually reveals a tenaciousness that often lays a solid foundation for frustration and working with a lack of concentration, and consequently a lack of effectiveness.

By applying the Pomodoro Technique, many people have begun to understand the value and effectiveness of detachment. A break every 25 minutes lets you see things from a different perspective and enables you to come up with different solutions; you often find mistakes to correct, and your creative processes are stimulated. Detachment enhances the value of continuity.

But the break really has to be a break. It isn't simply stopping an activity when the 25-minute buzzer rings, or when a set is finished, and continuing to think about that task during the

break. With the Pomodoro Technique, you get used to stopping and disengaging from continual work situations that don't improve individual or team effectiveness. Stopping, detaching, and observing yourself from the outside enhances awareness of your behavior. Stopping becomes synonymous with strength, not weakness.

4.4 Observation and Continual Feedback

The Pomodoro Technique represents a method of comparison every 25 minutes. The first and last five minutes of a Pomodoro, which serve to review and repeat what you've done, already enable you to realize if a certain course of action is effective. Pair work magnifies this positive phenomenon more than individual or group work. In the most critical cases, it's even possible to change direction from the very next Pomodoro, rescheduling the activities that need to be done.

Recording data at least once a day, with tracking every 30 minutes, lets us assess the effectiveness of our *modus operandi* on the basis of objective metrics. By observing what you've recorded, you can come to a decision to modify your process, improving the content of activities, defining clearer objectives or breaking down activities, identifying and eliminating duplicated or unnecessary activity or phases, testing alternative strategies for assembling activities while reducing error in qualitative estimates.

The chance to directly affect your work or study process by steering it toward improvement stimulates your personal interest in accomplishing activities by asserting yourself.

4.5 Sustainable Pace

Respecting the timetable for work and breaks contributes to achieving continuity. To guarantee consistently high productivity, in fact, it's not effective to make yourself work or study non-stop from morning till night. An industrial machine certainly produces more if it works a long time without stopping, but human beings simply don't function like industrial machines.

By respecting the schedule for breaks between single Pomodoros and sets of Pomodoros, you can work and study while maintaining your pace. You'll get tired, which is only natural, but you won't become exhausted. In other words, by consciously managing breaks and the complexity of content, in time anyone who uses the Pomodoro Technique can come to know his or her sustainable pace or physiological rhythm.

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Appendix 1: Rules and Glossary

Rules

- A Pomodoro Consists of 25 minutes Plus a Five-Minute Break (§2.1).
- After Every Four Pomodoros Comes a 15-30 Minute Break (§2.1.2).
- The Pomodoro Is Indivisible. There are no half or quarter Pomodoros (§2.1).
- If a Pomodoro Begins, It Has to Ring:
  - If a Pomodoro is interrupted definitively – i.e. the interruption isn't handled (§2.2.2) – it's considered void, never begun, and it can't be recorded with an X (§2.1.1).
  - If an activity is completed once a Pomodoro has already begun, continue reviewing the same activity until the Pomodoro rings (§2.1.3).
- Protect the Pomodoro (§2.2.3). Inform effectively, negotiate quickly to reschedule the interruption, call back the person who interrupted you as agreed.
- If It Lasts More Than 5-7 Pomodoros, Break It Down (§2.3, §3.11, §4.2). Complex activities should be divided into several activities.
- If It Lasts Less Than One Pomodoro, Add It Up (§2.3, §4.2). Simple tasks can be combined.
- Results Are Achieved Pomodoro after Pomodoro (§3.8).
- The Next Pomodoro Will Go Better (§3.9).

Glossary

- **Pomodoro**. Kitchen timer used to measure 25-minute intervals. The name of the Technique comes from the first timer used which was shaped like a tomato (pomodoro in Italian).
- **Time-boxing**. With this technique, once a series of activities has been assigned to a given time interval, the delivery date for these activities should never change. If necessary, the unfinished activities can be reassigned to the following time interval.
- **Qualitative estimation error**. This error occurs when all the activities needed to reach a certain goal haven't been identified.
- **Quantitative estimation error**. This error occurs when the estimation of a single activity (or set of activities) is higher (overestimation) or lower (underestimation) than the actual effort.

Appendix 2: To Do Today Sheet

	TO DO TODAY	
	UNPLANNED & URGENT	

Appendix 3: Activity Inventory Sheet

	ACTIVITY INVENTORY	